IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

PALTALK HOLDINGS, INC.,	
Plaintiff,	
vs.	**Case No. 6:21-cv-00757-ADA**
CISCO SYSTEMS, INC.,	
Defendant.	

DECLARATION OF JAMES BRESS IN SUPPORT OF
DEFENDANT CISCO SYSTEMS, INC.'S
OPENING CLAIM CONSTRUCTION BRIEF

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At the request of the law firm of Perkins Coie LLP and on behalf of Defendant Cisco Systems, Inc. ("Cisco"), I hereby submit this Declaration. I am over 18 years of age and competent to testify to the matters set forth herein. The statements contained in this Declaration are based on my personal knowledge.

I.   INTRODUCTION

1.   My name is James Bress. I have been retained to assist the Court and provide expert testimony concerning the construction of certain claim terms in U.S. Patent No. 6,683,858 (the "'858 Patent," "the asserted patent," or "the Patent-in-Suit"). This Declaration contains a brief introduction to the relevant technology field as well as my opinions concerning some of the claim terms that I understand to be at issue in the above-captioned litigation.

2.   This declaration contains statements of my opinions formed to date and the bases and reasons for those opinions. I may offer additional opinions based on further review of materials in this case, including opinions and/or testimony of other expert witnesses.

3.   As part of my analysis, I reviewed the documents and materials identified in this Declaration, including the asserted patent, its prosecution history, any extrinsic evidence cited, and any information or references discussed and/or identified in this Declaration. I have considered information from various other sources in forming my opinions. I have also drawn on my more than 35 years of experience in the communication systems industry.

4.   This Declaration is based on the information currently available to me. To the extent that additional information becomes available, I reserve the right to continue my investigation and study, which may include a review of documents and information that may be produced, as well as testimony from depositions that may not yet be taken.

5.   Cisco is compensating me for my time at a rate of $450 per hour for consulting,

development of reports and declarations, and testimony by deposition or at trial. None of my

compensation depends in any way on the outcome of this Litigation.

II.   EXPERT QUALIFICATION AND PREVIOUS TESTIMONY

6.   My CV is attached hereto as Ex. 1. It includes a list of all my prior expert

testimony from the last four years, and a list of my prior publications in the last ten years.

7.   I am a former engineer with Bellcore and author of Bellcore network features

requirements with over 35 years of experience in communication systems and equipment testing,

hardware and software design, network signaling, and telecommunications features and services.

I am currently President and Chief Technical Officer of AST Technology Labs, Inc., a company

that focuses on communication product performance testing and design consulting services.

8.   I have experience with the technologies described in the Patent-in-Suit, including

telecommunications network architectures, protocols, standards, Public Switched Telephone

Networks (PSTN), Voice-over-IP (VoIP) telephony and networks, mobile networks, and

interworking between PSTN, VoIP, and mobile networks. Below, I provide a brief summary of

my education and qualifications.

9.   I received a Bachelor of Science degree in electrical engineering from the

University of North Carolina at Charlotte in 1985, and a Master of Science degree in electrical

engineering from the California Institute of Technology in 1987, where I had a grade point

average of 4.0 out of a possible 4.0. From 1982 to 1984, while still attending the University of

North Carolina, I was an engineering technician at Process Systems, Inc., located in Charlotte,

NC. My duties there included technical writing for energy management field-located equipment

and host system software and user manuals, as well as developing test equipment for

field-located equipment and host systems.

10.   In addition to my educational background, I have over 35 years of experience in the telecommunications industry. In 1985, after graduating from the University of North Carolina at Charlotte, I was employed by Bell Communications Research, Inc. (also known as Bellcore), located in Piscataway, NJ. I was a member of the Technical Staff with responsibility for numerous telecommunications systems operations and development projects. For these systems-related projects, I was responsible for development and integration including computers, network hardware, network interconnections, network signaling, network protocols, database technologies, software, user interfaces, client-server operations, and telephony features. I also authored numerous system requirement publications and recommendations for Bellcore.

11.   In 1995 I founded AST Technology Labs, Inc., located in Melbourne, FL, where I am the President and Chief Technical Officer. My responsibilities at AST include the development of detailed specifications, architectures, hardware, and software for custom telecommunications and telephony test systems including analog, digital, VoIP, and mobile.

12.   I have served on numerous standards setting committees of the Telecommunications Industry Association ("TIA") and have been a prime contributor to many published ANSI (American National Standards Institute) / TIA telecommunications standards. I served continuously from 2000 to 2017 as chairman or vice chairman of the TIA TR41.3 subcommittee for Communications Products Performance and Accessibility. From 2017 to the present I have served as the chairman of the TIA TR41 engineering committee for Communications Products Performance and Accessibility. In relation to my work within the TIA, I received the HLAA (Hearing Loss Association of America) 2018 National Access Award for my development work and leadership in standards that have impacted telecommunications accessibility on a national level. Additionally, in 2018, I received an ANSI (American National

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Standards Institute) Meritorious Service Award in recognition of my 20+ years of leadership and contributions to the U.S. voluntary standardization system.

13.   Starting in 2017 and to the present, I am the chairman of the Bluetooth SIG High Quality Audio study group. This project is focused on developing a new Bluetooth specification for Bluetooth audio device conformance as an indication of meeting high quality audio performance standards.

14.   My Curriculum Vitae (Ex. 1) outlines my duties at Bellcore, AST, and as a consultant, includes further details about my education and professional career, lists my patents and publications, and lists the number of patent litigation and prosecution cases I have consulted on or testified in.

III.   LEGAL STANDARDS

15.   I am not an attorney, but I have been informed about certain aspects of the law that I understand are relevant to my analysis and opinions set forth herein.

16.   I understand that a patent's specification must conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention. I also understand that patent claims are interpreted from the perspective of a person of ordinary skill in the art at the time of the invention ("POSITA") in light of the intrinsic evidence. The intrinsic evidence includes the language of the claims themselves, the specification of the patent, and the relevant prosecution history from the United States Patent and Trademark Office ("USPTO"). Other evidence (such as dictionaries) not in the written record of the patent, and other extrinsic evidence also may be considered if it does not contradict the intrinsic evidence, but it is not necessary to rely on extrinsic evidence if the meaning of the claims is clear from the intrinsic evidence.

17.   I understand that as a general matter a claim should not be limited to a preferred

embodiment described in the specification. I also understand that a claim need not be interpreted

to encompass all disclosed embodiments when the claim language is clearly directed to a subset

of embodiments. I understand that a special definition for a claim term (differing from its plain

and ordinary meaning to a person of skill in the art) may be clearly set forth in the specification

or prosecution history and that the inventor's lexicography will govern in those instances.

18.   I understand that claims generally may not be construed one way in order to

obtain their allowance and in a different way to determine infringement. I also understand that

the prosecution history of a patent and related patents can inform the meaning of a claim term by

demonstrating how the inventor and patent examiner interpreted the terms. For example, an

applicant's repeated and consistent remarks during prosecution can shed light on the meaning of

a claim term. I further understand that an applicant can make clear and unambiguous statements

of disavowal or disclaimer of claim scope during prosecution such that the disavowed material is

no longer within the scope of the claims. I understand that mere criticism of a particular

embodiment otherwise covered by a claim is not sufficient to constitute disavowal. I also

understand that even when statements during prosecution history do not rise to the level of

unmistakable disavowal, they still inform the meaning of the claim. I further understand that

arguments or amendments made concerning a particular patent application can be instructive as

to the meaning of like terms in other related patent applications.

19.   I understand that the claim language must, when viewed in light of the

specification and prosecution history, inform those skilled in the art about the scope of the

invention with reasonable certainty, otherwise the claim is invalid as "indefinite." I understand

that this requirement assures that claims in a patent are sufficiently precise to permit a potential

competitor to determine whether he or she is infringing. I understand that a claim is "indefinite" if its language might mean several different things and no informed and confident choice is available among the contending definitions, including based on information already well known in the art.

20.   I also understand that terms of degree in claims, which call for a comparison against some baseline, are "indefinite" if they do not provide objective boundaries for those of skill in the art when read in light of the specification and prosecution history. I understand that absolute or mathematical precision is not required. I understand that examples in the specification may or may not allow a person of ordinary skill in the art to understand the objective boundaries of a claim term, depending on whether the examples provide sufficient guidance as to the scope of the term. I also understand that, if the meaning of a claim term depends on the unpredictable vagaries of any one person's opinion, then that term is "indefinite."

21.   I understand that a claim term can be in "means-plus-function" format. A "means-plus-function" claim term is expressed as a means or step for performing a specified function without the recital of structure or material. A claim term that uses the word "means" is presumptively a "means-plus-function" claim term, but other terms can be "means-plus-function" terms as well if they are purely functional (e.g., "element for" and "configured to").

22.   I understand that to construe a means-plus-function claim, first it is necessary to determine the function based on the claim language. The claimed invention is limited to the structure disclosed in the specification that performs the claimed function and equivalents. I understand that to construe the structure, it is necessary to identify the structure in the specification that performs the claimed function. To be considered corresponding structure, the structure must be clearly linked to the claimed function. I understand that for computer-enabled

means-plus-function claims where a microprocessor performs the claimed function, the

specification must disclose an algorithm that provides a procedure stating *how* the function is

performed. That algorithm is the corresponding structure. Computer-enabled means-plus-

function claims where a microprocessor performs the claimed function must disclose an

algorithm, or the claim is indefinite.

IV.   PERSON OF ORDINARY SKILL IN THE ART

23.   My opinions herein are rendered with respect to the qualifications of a person

having ordinary skill in the art ("POSITA") to whom the Patent-in-Suit is directed. I understand

from counsel that a POSITA is a hypothetical person who possesses an ordinary level of skill and

experience in the relevant art. The relevant field for the Patent-in-Suit is telephony audio

conferencing.

24.   For purposes of claim construction, I have been asked by counsel to assume a

relevant timeframe of June 28, 2000, the filing date of the '858 Patent. I take no position as to

whether the Patent-in-Suit is entitled to its claimed priority date.

25.   I understand that the following factors may be considered to determine the

appropriate skill level of a POSITA: (a) the types of problems encountered by those working in

the field and prior art solutions thereto; (b) the sophistication of the technology in question, and

the rapidity with which innovations occur in the field; (c) the educational level of active workers

in the field; and (d) the educational level of the inventor.

26.   After considering these factors in the context of the Patent-in-Suit, I conclude that

a POSITA in this time frame would have had a bachelor's degree in electrical engineering,

computer science, computer engineering, or another related field and two to three years of

experience working in the field of communication systems, hardware and software design, and

network signaling services. This description is approximate and additional educational

experience could make up for less work experience and vice-versa.

V.   BACKGROUND OF THE TECHNOLOGY AND ASSERTED PATENT

27.   To provide a framework for my opinions, the following is a brief explanation of

technology concepts relevant to the claims of the Patent-in-Suit that a POSITA would have been

familiar with in the 2000 timeframe.

A. Technology Background

28.   Traditional audio conferencing required participants to dial into a central

conferencing server over the Public Switched Telephone Network ("PSTN"). '858 patent,

1:20-25. A centralized server would then mix the individual audio streams for each of the

conference participants together and transmit the mixed audio stream back to each participant.

Analog audio may be mixed (i.e., combined, added together) electrically using for example a

resistive mixer device which would typically have 'N' input audio circuits and one output audio

circuit. Digital audio streams may be mixed mathematically by adding the digital audio samples

of each input audio stream to create one output stream of digital audio samples. Typical PSTN

based audio conferencing systems servers perform the necessary steps to initiate and maintain an

audio conference, and no special equipment or special functionality is required from the

participant's device.

29.   With the rise of the public Internet in the 1990s, people looked for ways to

connect globally, using devices other than the traditional telephone. This led to the development

of a technique to transmit voice audio over the Internet, commonly known as Voice over Internet

Protocol ("VoIP"). *See* '858 patent, 1:30-45. VoIP allowed participants to use PC-based

equipment to participate in audio conferencing. The PSTN uses circuit-switched audio

transmission over a circuit-switched network, and VoIP transmits voice (audio) packets over a packet-switched network.

30.   To address conferencing needs in packet-switched networks with PC-based VoIP clients, "conferencing servers (also called multipoint control units (MCUs)) were developed to host audio conferences where participants connected to a central MCU using PC-based equipment and the Internet, rather than traditional phone equipment over the PTSN." '858 patent, 1:55-60.

B. Overview of the '858 Patent

31.   The '858 patent is directed towards "a system, method, and computer program product which allows both mixing (e.g., PC-based) and non-mixing (e.g., phone-based) clients to participate in a single audio conference." '858 patent, Abstract.

32.   The '858 patent describes a server that allegedly can determine whether a client participating in an audio conference is a "mixing client" (i.e., has the local capability to mix multiple audio streams together). If "mixing clients" are participating in the conference, the server then packages audio data received in packets associated with individuals actively speaking into a packet containing multiplexed audio data (referred to in the claims as a "multiplexed stream") and transmits the packet containing multiplexed audio data to each "mixing client." '858 patent, 5:44-50, 5:66-:6:2. If the server determines that "non-mixing clients" are participating in the conference, the server decodes the received audio data associated with the active speakers, mixes the audio data, and encodes the mixed audio data into an audio stream (referred to in the claims as a "combined packet"). '858 patent, 5:55-65. The mixed audio stream is then transmitted to each "non-mixing client." '858 patent, 5:66-6:2.

33.   The '858 patent also describes a concept of maintaining an active speaker list and an "echo suppression" function. The active speaker list is simply a list of participants who are

"actually speaking rather than simply listening" during a conference. '858 patent, 5:4-23. The

"echo suppression" of the '858 patent is a technique to remove an active speaker's audio from

either the "multiplexed stream" or the mixed "combined packet" transmitted to the active

speaker so that the participant will not "hear themselves speak." '858 patent, 2:57-61;

see Claims 2, 3, 7, 8.

VI.   OPINIONS ON CLAIM TERMS

A. "a multiplexed stream" / "said multiplexed stream" (claims 1, 2, 6, 7)

34.   I have reviewed Paltalk's proposed construction of this term, which is simply

"plain and ordinary meaning." Because "multiplexed stream" is not a term-of-art in audio

conferencing and the '858 patent fails to mention or explain what a "multiplexed stream" is,

construction of the term is required, as I discuss below.

35.   It is my opinion that a person of ordinary skill in the art at the time the '858 patent

was filed would understand that the terms "a multiplexed stream" / "said multiplexed stream"

recited in the claims of the '858 patent are each "a data structure containing a continuous

sequence of interleaved packets of audio data received from each client on the active speakers

list."

36.   By 2000, the field of audio conferencing had been well established for decades.

The concept of telephone audio conferencing (having more than two people connected on an

audio call) dates back to the early 1900's when specialized equipment and telephone lines had

been used to demonstrate the capability. Traditional telephone network audio was transmitted on

telephone circuits as an analog signal or as a digital signal. In either case, the switching required

to connect one party to another (or multiple parties for a conference call) was performed by

switching circuits to connect physical or logical line segments between two points. This is called

"circuit switched transmission." Circuit-switched digital audio transmission is characterized as a

continuous stream of audio samples beginning at the source and received at the destination. Circuited-switched audio transmission generally provides high quality audio but requires considerable resources and bandwidth for the transmitted audio.

37.   An alternative to circuit-switched transmission is packet-switched transmission. Packet-switched transmission works by having the continuous stream of digital audio samples present at the source collected into a short stream of audio samples to be included as the payload of a packet. For example, typical VoIP implementations use packet audio payload lengths containing 10 ms to 40 ms of audio. Instead of establishing circuits, packet-switched networks send each individual packet from the source, through multiple packet switches and routers, to the destination. If all audio packets sent were received at the destination with equal delay, in the correct ordered sequence, and without any lost packets, then packet-switched audio would perform much like circuit-switched audio (except perhaps for the increased delay inherent with packet-based transmission).

38.   Circuit-switched transmission-based telephone devices can be connected to a packet-based network via a gateway that converts the circuit-switched audio data and call connection signaling to packet-switched audio and packet-switched call connection signaling and vice-versa.

39.   A typical audio conferencing system will receive audio signals from each conference participant, mix (add) the audio signals of each participant into one audio signal, and transmit the mixed audio signal to each conference participant. Most practical systems limit the number of received audio signals mixed to one or more selected active speakers usually determined by the signal level of the received audio signal. Using this technique, resources are

not wasted mixing audio signals for participants that are not currently speaking. This technique

also limits undesirable noise.

40.   For VoIP calls (i.e., calls carried over a packet-switched network), the audio

application (e.g., a conferencing application) transmits the call media (audio data) from the user

device to the conferencing bridge/server by encapsulating the audio data in packets. The

conferencing server collects the audio packets from each of the call participants, determines the

active speakers in the conference, and creates the audio to be returned to the conference

participants. In the '858 patent, the audio to be returned to the participants is either a mixing of

the audio packets from the active speakers or a multiplexing of the audio packets from the active

speakers. *See, e.g.,* claim 1. Because the multiplexed audio packets are to be returned to

"mixing" clients (e.g., PC-based equipment), the resulting multiplexed audio must itself be

transmitted to each "mixing" client in a data structure that can be transmitted over a

packet-switched network. The claims refer to this data structure as a "multiplexed stream."

41.   Standing alone, a "stream" generally refers to a transmission that occurs in a

continuous, unbroken, flow. *See* Ex. 2 Microsoft Computer Dictionary at 424. When combined

with the term "multiplex," the term refers simply to the output of a multiplexer, which is a

continuous, interleaved, sequence of data from its multiple input sources. "Multiplexing" in the

communications context is a well-understood technique for transmitting a number of separate

signals simultaneously over a single channel or line. *See* Ex. 2 Microsoft Computer Dictionary

at 302. In the context of the '858 patent, "multiplexing" refers to the process of taking the

received audio packets from two or more active speakers and creating an output for transmission

to a single recipient (that is, multiple inputs become one output). This output consists of a

continuous sequence of the packets received at the multiplexer inputs interleaved together

creating, in essence, a "single-file" line of packets from the parallel lines of packets on the input side. And, as a mentioned in the previous paragraph, because the output is being sent to a "mixing" client that transmitted its data using packets, the output must be "packaged" into a data structure that can be transmitted over a packet-switched network.

42.   A person of skill in the art would reach the conclusion that the meaning of the recited "multiplexed stream" from the explicit language of the claims is "a data structure containing a continuous sequence of interleaved packets of audio data received from each client on the active speakers list." For example, '858 patent claim 1 recites steps 3, 5, and 6: "(3) determining that a first subset of the plurality of clients has the capability to mix multiple audio streams; . . . (5) multiplexing said packets of audio data received from each client on said active speakers list into a multiplexed stream; (6) sending said multiplexed stream to each of said first subset of the plurality of clients." That is, a single "multiplexed stream" is created from the packets of audio data received from multiple clients on the active speaker list. This same "multiplexed stream" is sent separately to each of the "first subset of the plurality of clients" which are the "mixing" clients. Because the platform receives audio packets "from each of the plurality of clients" as recited in limitation (1), a POSITA would understand that the network connecting the clients to the platform is a packet-switch network and therefore data to the clients must be transmitted in a form accepted by the packet-switched network.

43.   The construction is also consistent with the sole embodiment described in the specification of the '858 patent in Figure 3. In this description, the platform processes received audio packets on a client-by-client basis. *See* '858 patent at 5:24-29. When the client is a "mixing client", the method "multiplexes (by employing mix/mux 208) the audio stream data (stored on retriever 206) for all k active speakers." '858 patent at 5:44-46. The stored audio data

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is limited to a set of audio packets because this process is only invoked when a pre-determined

number of audio data packets are received from each speaker or on a pre-determined schedule.

'858 patent at 4:62-5:3. It is this set of audio packets which the mix/mux 208 uses to form the

"multiplexed stream." The specification then details that the resulting "multiplexed audio packet

(created in step 314)" is sent "to a mixing client." '858 patent at 5:66-6:1. Because of the way

packets are created (e.g., header followed by a payload), a POSITA would understand this

disclosure to require that the packets from the multiple active speakers are placed in the output

data structure in a continuous sequence (one after the other) for transmission (e.g., placed in the

payload of the multiplexed audio packet). The process is then repeated for the next client. '858

patent at 6:2-5. Because the process is repeated using the same set of input audio packets, the

resulting audio payload in each output multiplexed data packet will be the same for each mixing

client.

B. "Means for removing. . ." (claims 7 and 8)

44.   I understand that the parties agree on the following functions, based on the claim

language:

> Claim 7: removing, before said packet sender sends said multiplexed stream to one of the
> plurality of clients which have the capability to mix multiple audio streams, from said
> multiplexed stream said packets of audio data received from said one of the plurality of
> clients, when said one of the plurality of clients is on said list of active speakers.

> Claim 8: removing, before said packet sender sends said combined packet to one of the
> plurality of clients which do not have the capability to mix multiple audio streams, from
> said combined packet said packets of audio data received from said one of the plurality of
> clients, when said one of the plurality of clients is on said list of active speakers.

45.   It is my opinion there is no corresponding structure in the specification that

performs the claimed "removing" functions because the specification does not reveal how the

microprocessor removes audio packets of active speakers from the multiplexed stream or from

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the combined packet. The specification does not disclose an algorithm corresponding to these functions.

46.   The only disclosure in the specification relating to an "echo suppression function so that party j will not 'hear themselves speak'" states that "as will be apparent to those skilled in the relevant art(s), if party j is an active speaker, step 314 will not include party j's own audio data in the multiplexed packets." '858 patent at 5:48-52. This description says nothing about how to remove packets of audio data from the multiplexed stream, as the claim requires, so it is not linked to the claimed function. A person of skill in the art at the time of the '858 patent would not understand how to remove audio packets from a multiplexed stream based on this description. Similarly, the statement that "it will be apparent to those skilled in the relevant art(s), if party j is an active speaker, step 316 will not include party j's own audio data in the decoded data," says nothing about how to remove packets of audio data from the combined packet, as the claim requires. Based on this disclosure, a person of ordinary skill in the art would not know how to perform the removing function. '858 patent at 5:55-61.

47.   A person of ordinary skill in the art would not identify the "mixer" that Paltalk points to as corresponding structure, because the patent does not describe how the mixer removes packets from a multiplexed stream. A mixer would not multiplex unless it was specifically programmed to do so. It also would not remove audio packets from a multiplexed stream unless it had special programming to instruct it how to do so. A POSITA would not know how to "un-multiplex" an audio component from the multiplexed stream of claim 7 to remove audio data from an active speaker that was already processed into a multiplexed stream. Such a process would require a specific software architecture and algorithms however no such structure is

disclosed in the '858 patent. The patent does not mention removing packets from said

multiplexed stream when referring to the mixer. *See* '858 patent at 4:29-56; Figs. 2, 3.

48.   A mixer also would not remove audio packets from a combined packet unless it

was specifically programmed to do so. A person of skill in the art at the time of the '858 patent

would not know how to remove audio packets from a combined packet (i.e., a packet in which

the audio has already been mixed together). The combined packet of claim 8 contains the mixed

audio data from multiple clients of the audio conference. Mixing digital audio requires

mathematically adding audio samples from multiple audio streams to create one mixed/combined

stream. The '858 patent does not disclose an algorithm or method for mixing audio and it

likewise does not disclose any algorithm or means for "un-mixing" audio to remove packets of

audio data received from the active speaker. A POSITA would not know how to remove a

component of the audio stream from the audio contained in a mixed/combined audio packet,

based on the disclosure of the '858 patent. Such a process would require a specific software

architecture and algorithms; however, no such structure is disclosed in the '858 patent.

49.   As such, my opinion is that claims 7 and 8 are indefinite because the specification

fails to provide any structure or algorithm for the computer enabled limitations to sufficiently

inform a person of ordinary skill in the art on how to perform the claimed function.

I declare under the penalty of perjury under the laws of the United States that all statements made in this Declaration are true and correct.

Executed on December 14, 2021 in Melbourne, FL.

_____
James Bress

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